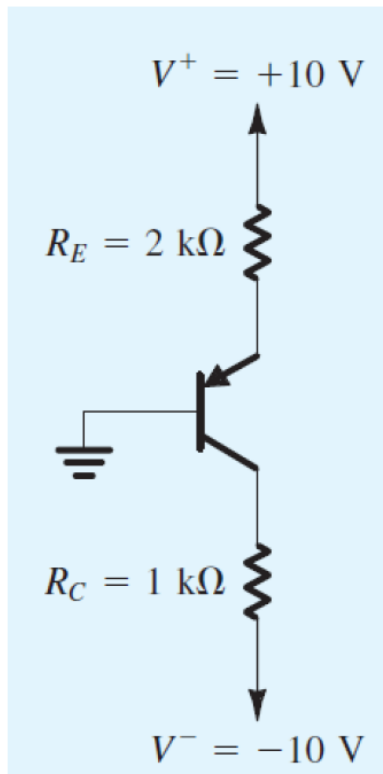


ECE322L-Homework 5 (100 points)
Assigned on Thursday, 02/27/2020-11 am
Due on Thursday, 03/05/2020-11 am

Problem (60 pts.)

For the circuit below find the largest value that R_C can be raised to with the transistor still remaining in active mode. In addition, redesign the circuit to establish a collector current of 1 mA and a reverse bias on the collector-base junction of 4 V. Assume $\alpha \approx 1$



Questions (40 pts.)

Circle the correct answer or fill the blanks

1. In a bipolar npn transistor, when the base-emitter junction is forward biased and the collector-base junction is reverse biased, the BJT is said to be in the
 - a. Forward-active mode
 - b. Reverse-active mode
 - c. Cut-off
 - d. Saturation

2. The common emitter-current gain is defined as ratio of
 - a. Collector current to Emitter Current
 - b. Emitter current to Collector Current
 - c. Collector current to Base Current
 - d. Base current to Emitter Current

3. Which one of the following statements is true for a BJT operating in the forward-active region?
 - a. Collector current is almost equal to the Emitter current
 - b. Emitter current is almost equal to the Base current
 - c. Base current is much larger than the emitter current
 - d. Base current is almost the same as the collector current

4. A bipolar pnp transistor is in forward-active mode when the base-emitter voltage is _____ and the base-collector voltage is _____.